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CHEMICALS

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April 24, 1992

VIA FEDERAL EXPRESS

Cheryl W. Smith  
Senior Remedial Project Manager  
United States Environmental Protection Agency  
345 Courtland Street Northeast  
Atlanta, Georgia 30365

Re: Response to EPA Comments on the Hazardous Substance Indicator  
Parameter Technical Memorandum  
Your Letter of March 30, 1992  
Olin Chemicals/McIntosh Plant Site  
McIntosh, Alabama

Dear Ms. Smith:

Per your request in your March 30 letter, and as committed in my letter of April 1, attached is Olin's response to EPA comments on the Hazardous Substance Indicator Parameter Technical Memorandum, prepared for Olin by Woodward-Clyde Consultants. We have repeated each of EPA's comments (in bold) and responded immediately below each.

Please let me know if you have any questions regarding the contents of this response or any of the work in progress at McIntosh, Alabama.

Sincerely,

OLIN CORPORATION

A handwritten signature in cursive script, likely belonging to J. C. Brown.

J. C. Brown  
Manager, Environmental Technology

\jcb\123  
Attachment

cc: W. A. Beal  
D. E. Cooper (2)  
W. J. Derocher  
M. L. Fries

W. G. McGlasson  
J. L. McIntosh  
T. B. Odom  
R. A. Pettigrew

**TECHNICAL REVIEW COMMENTS  
HAZARDOUS SUBSTANCE INDICATOR  
PARAMETER TECHNICAL MEMORANDUM  
OLIN CORPORATION/McINTOSH PLANT  
McINTOSH, ALABAMA**

**GENERAL COMMENTS:**

1. **Exposure assessment resulting from inhalation of groundwater is not being considered. Although this does not effect the list of potential chemicals of concern, this inhalation exposure for groundwater and surface water should be included for risk assessment purposes.**

Inhalation of volatile components of groundwater and surface water by industrial and residential human receptors is not expected to constitute a significant potential exposure route. Based on this, the approved Work Plan does not include the collection of appropriate air data for the Olin-McIntosh site that could be used to quantitatively assess the exposure from inhalation of volatiles from surface water and groundwater. The potential contribution of the risk associated with human inhalation exposure to volatiles from surface water and groundwater will be addressed qualitatively in the risk assessment.

2. **Arsenic was eliminated in some media because of low concentrations. According to Risk Assessment Guidance for superfund (RAGS, 1989), arsenic is a known human carcinogen (weight of evidence classification A). Therefore, it must be considered a potential chemical of concern (PCOC).**

Arsenic will be added to groundwater as a potential chemical of concern due to its Class A carcinogen status.

3. **The document should clearly state that since the data have not been validated, there may be changes in the list of potential chemicals of concern.**

The last paragraph on page 19 (Section 5.2) states that chemicals may be added or removed based on the final validated data.

4. **The document should also state that, if later phases of work present new or different data, new constituents may be added to the list of potential chemicals of concern.**

The last paragraph on page 19 (Section 5.2) states that additional RI activities may result in modifications to the list.

5. **Specific comments 20 and 21 indicate additions and corrections that should be made to the maximum concentration values listed in Tables 1 and 2. Note that these changes will affect the Hazard Factor calculation as well as the Hazard Description for those affected compounds. These should be recalculated appropriately.**

The final data validation packages were submitted to EPA with the Preliminary Site Characterization Summary (PSCS) on April 16, 1992. A revised chemicals of potential concern list will be developed based on the final validated data and this list will be included in the Exposure Assessment. The same methodology will be used to develop the revised list as was used for the HSIPTM taking into consideration EPA comments.

6. **There should be footnotes defining the sample codes on all of the appendices. All appendices should also have individual page numbers.**

This comment will be taken into consideration during future RI/FS submittals.

7. **Apparently, only the human health guidance (RAGS, Vol. I) was utilized in developing the preliminary list of chemicals of concern. However, the list**

should be re-evaluated by using the ecological guidance (RAGS, Vol. II), in addition to the human health guidance (RAGS, vol. I). EPA draws this conclusion based on the fact that it is not apparent that ecological benchmarks were considered in selecting the PCOCs for OU#2.

As the Work Plan provides, the ecological risk assessment will be a separate document from the human health risk assessment. Therefore, the ecological guidance (RAGS, Vol. II) will be used to generate a chemicals of potential concern list for the ecological risk assessment separately from the present submission related to human health risk.

8. **Section 5.1 provides a "half-truth" and misstates the RAGS guidance relative to chemical of concern reductions. It does not "recommend" any reduction but discusses a situation where the contaminants that represent 99% of the risk would be dealt with in the report text and the remainder in an appendix.**

The chemicals of potential concern list in the HSIPTM was produced very conservatively by using the maximum concentrations for each chemical for each medium of concern. The list of chemicals for future analysis in the risk assessment was reduced using the concentration-toxicity screens. After that reduction, we then retained any chemical that contributed to 1.0 or more percent of the total potential hazard. We believe that this accurately addresses the human health risk quantitatively at the McIntosh site.

#### **SPECIFIC COMMENTS**

1. **Executive Summary, pages ES-2, paragraph 1, last sentence**  
**The word "form" should be changed to "from."**

No response necessary.

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2. Section 1.0, page 1, paragraph 2

This paragraph describes the site vicinity. It is stated that the west side of the site is bounded by "land." The contractor believes that this is land used by Olin and, possibly, owned by Olin. A more detailed description of the land is needed.

The land referred to in this paragraph is not owned by Olin. In future RI/FS deliverables the site vicinity description will state that the site is bounded on the west by land not owned by Olin.

3. Section 1.0, page 2, paragraph 2

It is stated that chloroform is "probably a degradation product from the operation of the Crop Protection Chemicals (CPC) plant from 1954 to 1982." The degradation products of all of the compounds manufactured at the CPC plant during this time [pentachloronitrobenzene (PCNB), trichloroacetonitrile (TCAN), and 5-ethoxy-3-trichloromethyl-1,2,4-thiadiazole (terrazole)] should also be presented.

Chloroform is one of the most common volatile organic constituents reported in the groundwater samples from the McIntosh facility. Chloroform was not handled at the facility; however, the degradation of the TCAN residue from the CPC plant wastes to chloroform is well documented. Olin produces the same waste at their Rochester New York facility. The waste is managed by hydrolyzing under mild hydrolysis conditions to degrade the waste to chloroform. Constituents in the groundwater were defined through past Appendix VIII analyses and the Contract Laboratory Program (CLP) analyses conducted for the RI. All the degradation products of other manufacturing processes have been addressed, if these degradation products have been reported in groundwater.

4. Section 2.1, page 5, paragraph 3

The second sentence in this paragraph is unclear. It states that the purpose of the Environmental Impact Study was "to evaluate the impact of the construction of a chloro-alkali diaphragm cell process at the McIntosh plant

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site." Does this mean process building, process system, or process unit? Please clarify.

The purpose of the Environmental Impact Study (EIS) was to evaluate the potential impact of construction and operation of the entire chlor-alkali diaphragm plant on the environment and the surrounding McIntosh community.

**5. Section 2.1, page 6, paragraph 3**

**This paragraph indicates that the ground water flow direction was established. Please state the direction.**

A description of groundwater flow was considered out of the scope of the HSIPTM. A detailed description of the hydrogeology is provided in the Preliminary Site Characterization Summary (PSCS) submitted to EPA on April 16, 1992, and will be included in the final RI report.

**Please do not refer to the contaminants as "parameters" (i.e., "hydrogeological parameters"). This terminology adds confusion.**

This comment will be taken into account during future RI/FS deliverables.

**6. Section 2.2, page 8, paragraph 2**

**When describing the concentration ranges of mercury and pentachloro-nitrobenzene, the method detection limits used should also be stated, as was done for hexachlorobenzene.**

This comment will be taken into account during future RI/FS deliverables.

**7. Section 2.2, page 8, paragraph 3**

**This paragraph mentions that mercury in water was detected at or below the drinking water standards. Please state the drinking water standard value that**

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was used for comparison, and reference the source from which this value was obtained.

The Primary Drinking Water Standard for mercury is 2.0  $\mu\text{g/l}$ . This is a Maximum Contaminant Level (MCL) under 40 CFR Part 141.

**8. Section 3.1, page 9, paragraph 1**

The document should include a table indicating the depths of the monitoring wells sampled and from which aquifer the ground water is being drawn.

A table showing the depth of the monitoring wells sampled and the aquifer screened was presented in the PSCS and will be included in the final RI report.

**9. Section 4.0, Contract Laboratory Program Analytical Results, page 12, paragraph 3**

The first sentence says that "Table 1 summarizes the Target Compound List organic parameters that are interpreted to be detected based on the CLP Data." Be specific, indicate what this detection is based on and define the detection criteria, such as contract-required quantitation limit (CRQL), detection limit (DL), quantitation limit (QL), or some other determined value.

As noted in paragraph 2, page 12 of the HSIPTM, the data were considered preliminary because data validation was not yet complete. Common laboratory and field contaminants were qualified based on the Functional Guidelines criteria. Generally, the other reported values were considered, either above the CRQL or at an estimated value below the CRQL. In some cases the data reviewer qualified reported constituents as not detected based on professional judgement. These were generally low concentrations that indicated inconsistencies in the analytical results. The data validation packages submitted to EPA with the PSCS present the criteria used in interpreting the reported CLP results.

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10. **Section 4.0, CLP Analytical Results, page 13, paragraph 1**

**This sentence states that carbon disulfide is a laboratory contaminant and therefore was considered nondetected in the sediment or surface water samples. This compound is, however, included in the surface water section of Table 1.**

Carbon disulfide is qualified as not detected in the surface water based on the final validated data presented with the PSCS. Carbon disulfide will not be on the revised chemical of potential concern list for surface water.

11. **Section 4.0, CLP Analytical Results, page 13, paragraph 1**

**Please clarify what specific "professional judgement" modified the functional-guideline base selection decision (pg. 13).**

As discussed in the response to specific comment 9, the data reviewer used both functional guidelines and professional judgement when reviewing the data. The data validation packages presented with the PSCS describe the specific circumstances where professional judgement was used.

12. **Section 4.0, CLP Analytical Results, page 13, paragraph 1**

**It should be stated that phthalate esters including bis(2-ethylhexyl)phthalate, are qualified as nondetected in ground water. This will support the omission of diethylphthalate identified in sample PL-9D, which was presented in Table 1.**

Diethylphthalate is qualified as not detected in the groundwater sample from PL-9D in the final data validation packages presented with the PSCS.

13. **Section 4.0, CLP Analytical Results, page 13, paragraph 1**

**Carbon disulfide was also considered for this list of potential chemicals of concern in ground water (Table 1). Please add this fact to the sentence.**



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**Beginning the sentence with a transitional phrase, such as "Although they are common laboratory contaminants, . . ." would make it read more clearly.**

Carbon disulfide is qualified as not detected in the groundwater based on the final validated data presented with the PSCS. Carbon disulfide will not be on the revised chemicals of potential concern list for groundwater.

**14. Section 4.0, CLP Analytical Results, page 13, paragraph 3**

**EPA agrees with the statement inferred in this paragraph that all contaminants detected in the media samples including TICs will be addressed in some way in the baseline risk assessment document.**

All reported constituents that are considered valid detections ~~will~~ be considered in the baseline risk assessment document. Because the TIC results are tentative with only presumptive evidence of identification of the compound, not all reported TICs will be considered in the baseline risk assessment. First, only compound-specific TICs listed with a C.A.S. number or as a specific isomer will be considered. These TICs will then be further evaluated based on the frequency of occurrence and the potential association with Olin products or waste to assess whether they should be considered valid detections.

**15. Section 4.0, CLP Analytical Results, page 13, paragraph 4**

**This paragraph indicates that total dissolved inorganics are used to determine the maximum reported values for ground water. However, both dissolved and total inorganics are used for surface water. There was no mention of sediments. Based on the labels and appendices, it appears that both dissolved and total inorganics were used to determine the maximum reported values for sediments. Please clarify.**

The sediments were only analyzed for total inorganics.

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**16. Section 4.0, CLP Analytical Results, page 14, paragraph 1**

**Please note that all ground water data used in exposure point concentration for the risk assessment must be from unfiltered samples with reasonable sample detection limits for each chemical of interest. (It is unclear what "normalizing the data" entailed).**

The unfiltered samples with reasonable detection limits will be used in exposure point concentrations. Only unfiltered samples were obtained from the drinking water wells that were sampled, and the analytical methodologies were modified to reduce the detection limits (to one-fifth of the CRQL). In the evaluation of the onsite groundwater and surface water data, both the filtered and unfiltered results will be considered.

Normalizing the data entailed assigning total hazard a value of 1.0 and determining the contribution of each detected compound as a fraction of 1.0.

**17. Section 4.0, CLP Analytical Results, page 14, paragraph 3**

**Explain the rationale for the decision to eliminate compounds from the ground water medium and no other. For example, the organic list may have been unmanageable, or the other media may not have met the criteria for deletion. In addition, the 8 contaminants eliminated on the bases of occurring at levels below CRQL (pg. 14) should be reevaluated for any "hits" occurring above relevant MCLs or proposed MCLs. (Many of the CRQLs for VOCs are above the ARAR level). In addition, any carcinogens that occur at maximum concentrations that result in a calculated dose greater than  $10^{-6}$  risk level should be selected as a contaminant of potential concern.**

**Alpha-chlordane was not listed in the ground water section of Table 1. It should be added, since it was detected in sample BR-7.**

Compounds were only eliminated from the groundwater list because the other media did not meet the criteria that is outlined on page 14 of the HSIPTM. The criteria for eliminating these chemicals was not only that they were reported below

the CRQL but also that they were reported infrequently as compared to other site constituents. It is more appropriate to compare the site constituents that were reported at quantifiable concentrations to the ARARs.

Alpha chlordane is qualified as not detected in the groundwater based on the final validated data presented with the PSCS.

**18. Section 5.0, page 16, paragraph 2, first sentence**

**Please identify which table(s) are being referred to in this sentence.**

The chemicals of potential concern list in Table 9.

**19. Section 5.1, page 18, paragraph 2**

**In the next to last sentence, the word "cyanide" is repeated.**

No response required

**20. Table 1, Summary of Organic Compounds**

**The tentatively identified compounds in this table have no associated data sheets in the appendices. Also, the N qualifier with which their concentrations were flagged, is not defined in this table or any of the appendices.**

**Table 1 needs correction to remedy a "D" notation in the body, not in the footnotes and an "E" notation in the footnotes, not in the body.**

**Bromoform, a volatile organic compound, should be added to the surface water section of this table. It was detected in Sample WG-8D03. Also, according to Appendix A, the maximum reported concentration of carbon disulfide is 3J, not 4J.**

Some corrections and additions need to be made to the pesticide/  
polychlorinated biphenyls section concerning the sediment samples.

**Add:** Endosulfan I, with a maximum concentration of 110PD  $\mu\text{g/kg}$   
(detected in Sample SG-C5)

Dieldrin, with a maximum concentration of 15P  $\mu\text{g/kg}$   
(detected in Sample SG-F7)

Endosulfan II, with a maximum concentration of 78, not 78P

**Correct:** Gamma chlordane has a maximum concentration of 78, not  
78P

Aldrin has a maximum concentration of 4.7P, not 5.0P

These comments will be taken into consideration in developing the revised  
chemicals of potential concern list based on the final validated data. This revised  
list will be presented in the Exposure Assessment

21. **Table 2, Summary of Inorganic Analytes**

**Corrections should be made to the inorganic sediment maximum concentration  
values, based on information in the appendices.**

**Correct:** Cadmium from 0.078 mg/kg to 1.0 mg/kg  
Copper from 57.8 mg/kg to 50.4 mg/kg  
Cyanide from 1.5 mg/kg to 0.47 mg/kg  
Mercury from 290 mg/kg to 30.1 mg/kg  
Silver from 1.0 mg/kg to 1.36 mg/kg  
Thallium from ND4 mg/kg to 0.9 mg/kg  
Zinc from 227 mg/kg to 205 mg/kg

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These comments will be taken into consideration in developing the revised chemicals of potential concern list based on the final validated data. This revised list will be presented in the Exposure Assessment.

**22. Figure 3, Ground Water Sampling Well Location Map**

In the legend, the designation for alluvial aquifer wells vs. Miocene aquifer wells should indicate only that the solid circle denotes alluvial and the solid triangle denotes Miocene. Use of the prefixes before the well number (i.e., "PL-4S" and "DH-3") is confusing since not all wells in the same aquifer have the same prefixes. On the figure, the prefixes PL and DH appear to represent alluvial and Miocene wells, respectively.

Also, ground water sample D/WW-12 is not on the sample location map. Please explain why it does not appear.

This comment will be taken into consideration during future RI/FS deliverables.

D/WW-12 refers to the duplicate sample from WW-12.

**23. Appendix A, Preliminary Ground Water Data**

According to the page numbering, there are two sections for all organic compound lists. Please explain the reason for this (such as different analytical methods were used, it represents two separate sampling episodes, or whatever the case may be).

The page numbering refers to the two sample delivery groups (SDGs). The analytical methods were the same for both of these SDGs.

**24. Appendix B, Preliminary Surface Water Data**

Sample WG-H5/01, in the total inorganic constituent table, has a superscript "1" after the ND flag. If there is a difference between the not detected "ND" and an "ND<sup>1</sup>," please explain this designation.

Similarly, Page 1 of 3 of the Preliminary Surface Water Dissolved Inorganic Constituents has a footnote of <sup>1</sup> ND = Not detected; however, there is no footnote in the body of the table.

"ND" refers to not detected at or above the sample detection limit and there is no difference between the footnoted and non-footnoted "ND".